

REMARKS

Claims 1 through 16 are pending in this Application. The Title has been changed consistent with the Examiner's request, and the Abstract of the Disclosure has been amended as to form. In addition, claim 1 has been amended. Care has been exercised to avoid the introduction of new matter. Adequate descriptive support for the present Amendment should be apparent throughout the originally filed disclosure. Applicant submits that the present Amendment does not generate any new matter issue.

The Title

The Examiner asserted that the Title of the invention is not descriptive and required a new Title. In response the Title has been amended consistent with the Examiner's request.

Claims 1 through 4 and 9 through 12 were rejected under 35 U.S.C. § 102 for lack of novelty as evidenced by Terazono et al.

In the statement of the rejection, the Examiner asserted that Terazono et al. disclose a fuel cell electrode and fuel cell corresponding to those claimed, referring to various portions of the published patent application. This rejection is traversed.

The factual determination of lack of novelty under 35 U.S.C. § 102 requires the identical disclosure in a single reference of each element of a claimed invention, such that the identically claimed invention is placed into the recognized possession of one having ordinary skill in the art. *Dayco Prods., Inc. v. Total Containment, Inc.*, 329 F.3d 1358, 66 USPQ2d 1801 (Fed. Cir. 2003); *Crown Operations International Ltd. v. Solutia Inc.*, 289 F.3d 1367, 62 USPQ2d 1917 (Fed. Cir. 2002). There are fundamental differences between the claimed fuel cell electrode and fuel cell on the one hand, and the fuel cell electrode and fuel cell disclosed by Terazono et al. on

the other hand, that scotch the factual determination that Terazono et al. disclose a fuel cell electrode and fuel cell identically corresponding to those claimed.

Specifically, the present invention addresses and solves the output problem attended upon a decrease in the three-phase interface of a conventional fuel cell electrode, including that disclosed by Terazono et al. The present invention addresses and solves that problem by configuring the fuel cell electrode to include two types of carbon particles, i.e., a hydrophilic **first** carbon particle supporting the catalytic metal, and a water-repellant **second** carbon particle. By including **two types** of carbon particles, the catalytic reaction occurs efficiently on a surface of the first carbon particle, and a gas diffusion path is secured on the surface of the second carbon particle. Not so in the fuel cell electrode disclosed by Terazono et al.

One of the features of Terazono et al. is that the carbon support exhibits increased water repellency because of increasing the degree of graphitization. This carbon support with increased graphitization supports the metal catalyst component (paragraph [0021] of Terazono et al.). Securing **water repellency of the carbon supporting the metal catalyst** in Terazono et al. results in a **loss of intimacy** between the carbon support and the ion exchange resin, thereby **reducing** the area of contact between the ion exchange resin and the carbon support. This causes the area of three-phase interface to be decreased rendering it difficult to improve the output of the fuel cell. **As previously pointed out, this is the very problem addressed and solved by the claimed invention.**

Based upon the foregoing it should be apparent that the present invention differs from Terazono et al. in at least two respects. Firstly, the catalyst-supporting carbon particle **supporting** the catalytic metal is **hydrophilic**. Secondly, a water-repellant carbon particle is provided **separate** from the catalyst-supporting carbon particle. As previously pointed out, these

differences between the claimed invention and Terazono et al. are functionally significant in improving fuel cell output.

The above argued functionally significant structural differences between the claimed invention and Terazono et al. undermine the factual determination that Terazono et al. disclose a fuel cell electrode and fuel cell identically corresponding to those claimed. *Minnesota Mining & Manufacturing Co. v. Johnson & Johnson Orthopaedics Inc.*, 976 F.2d 1559, 24 USPQ2d 1321 (Fed. Cir. 1992); *Kloster Speedsteel AB v. Crucible Inc.*, 793 F.2d 1565, 230 USPQ 81 (Fed. Cir. 1986). Applicant, therefore, submits that the imposed rejection of claims 1 through 4 and 9 through 12 under 35 U.S.C. § 102 for lack of novelty as evidenced by Terazono et al. is not factually viable and, hence, solicit withdrawal thereof.

Claims 5 through 8 and 13 through 16 were rejected under 35 U.S.C. § 103 for obviousness predicated upon Terazono et al in view of Koschany et al.

This rejection is traversed. Specifically, claims 5 through 8 and 13 through 16 depend ultimately from independent claim 1. Applicant incorporates herein the arguments previously advanced in traversing the imposed rejection of claim 1 under 35 U.S.C. § 102 for lack of novelty evidence by Terazono et al. The secondary reference to Koschany et al. does not cure the previously argued deficiencies of Terazono et al. Accordingly, even if the applied references are combined as proposed by the Examiner, and Applicant does not agree that the requisite fact-based motivation has been established, the claimed invention would not result. *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 USPQ2d 1434 (Fed. Cir. 1988).

Application No.: 10/724,713

Applicant, therefore, submits that the imposed rejection of claims 5 through 8 and 13 through 16 under 35 U.S.C. § 103 for obviousness predicated upon Terazono et al. in view of Koschany et al. is not factually or legally viable and, hence, solicits withdrawal thereof.

Based upon the foregoing it should be apparent that the imposed rejections have been overcome, and that all pending claims are in condition for immediate allowance. Favorable consideration is, therefore, solicited.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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